

## CLAIMS

1. A fuel cell system comprising: a fuel cell; fuel gas supply means for supplying a fuel gas to an anode of said fuel cell; oxidant gas supply means for supplying an oxidant gas to a cathode of said fuel cell; inert gas supply means for supplying an inert gas to the anode and/or cathode of said fuel cell; and means for measuring a pressure  $P_a$  in an inlet-side flow path leading to the anode of said fuel cell and a pressure  $P_c$  in an inlet-side flow path leading to the cathode,

said fuel cell being subjected to a purge operation of replacing the fuel gas and/or oxidant gas in said fuel cell with the inert gas supplied from said inert gas supply means when said fuel cell is started up or shut down,

wherein the differential pressure  $\Delta P$  is defined as  $\Delta P = P_a - P_c$ , and the differential pressure during operation  $\Delta P_o$  and the differential pressure during the purge operation  $\Delta P_p$  satisfy the relation:  $0 < \Delta P_o \times \Delta P_p$ .

2. The fuel cell system in accordance with claim 1, wherein  $\Delta P_o$  and  $\Delta P_p$  satisfy  $|\Delta P_p| \leq |\Delta P_o|$ .

3. The fuel cell system in accordance with claim 1 or 2, further comprising control means for increasing or decreasing the amount of the inert gas supplied to said fuel cell based on the values of  $P_a$  and  $P_c$  during the purge

operation of said fuel cell.

4. The fuel cell system in accordance with claim 1 or 2, further comprising means for changing the internal diameter of an outlet-side flow path of an exhaust gas from said fuel cell, and means for changing said internal diameter based on the values of  $P_a$  and  $P_c$  during the purge operation of said fuel cell.